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Attentional style of soccer athletes

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ATTENTIONAL STYLE OF SOCCER ATHLETES

by

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ABSTRACT

This study investigated the relationship between perceived ability and success and the four predictor variables of general attention, soccer-specific attention, visual disembedding, and competitive trait anxiety. College and professional soccer athletes (N = 62) completed the test of soccer attentional style (TSAS), Test of Attentional Style (TAS), Group Embedded Figures Test (GEFT), Sport Competition Anxiety Test (SCAT), and personal assessment questionnaire (PAQ). Cronbach's coefficient alpha analysis revealed that TSAS exhibited higher internal consistency. Pearson product-moment correlation revealed that the two attentional tests were reasonably discrete and measured dissimilar constructs. Stepwise multiple regression analysis revealed the soccer-specific attentional measure to be the better predictor of perceived soccer ability. Perceived ability was predicted by athletes exhibiting the ability to process external cues, rehearse and ready internal strategies, and be able to narrow attention under certain conditions. In combination with other predictor variables the TAS was a slightly better predictor of perceived soccer success; but alone both TAS and TSAS were equal contributors of perceived success. High perceived soccer success athletes tended to rehearse and ready internal strategies (in both sport and nonsport situations) without becoming overloaded. Additionally, they handled the stress of competitive sport situations without excessively narrowing their attention generally. Canonical correlation revealed that high perceived ability soccer athletes tended to narrow attention effectively and preselect cues that were likely to appear, although they did not internalize so much that they became overloaded. Most important is that

athletes know what they have to do and they internalize a plan of attack to maximize their strengths. It was concluded that the sport-specific TSAS was more appropriate for identifying attentional behaviors of high ability soccer athletes than the general TAS.

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A Thesis Presented to the Faculty of the School of Health, Physical Education, and Recreation Ithaca College

In Partial Fulfillment of the Requirements for the Degree Master of Science

by

Fred Alfred Hooper

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Ithaca College
School of Health, Physical Education, and Recreation
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CERTIFICATE OF APPROVAL

MASTER OF SCIENCE THESIS

This is to certify that the Master of Science Thesis of

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submitted in partial fulfillment of the requirements for the degree of Master of Science in the School of Health, Physical Education, and Recreation at Ithaca College has been approved.

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Chapter 1

INTRODUCTION

Skill, in soccer terms, is the ability to be in the right place at the right time and to select the correct technique on demand. Skill, therefore, is concerned with making selections of when, where, and how to use the correct technique. An individual soccer player on a team, on average, only has possession of the ball for 2 minutes in a game (Hughes, 1980). What the player is doing for the other minutes of the game is making decisions and selections of when, where, and how to move. Decision making is a difficult task compounded by the probability that soccer is the most fluid of all games. All the players and the ball can move through 360 degrees and there are a minimum number of laws and relatively few stoppages. Situations, therefore, change rapidly, requiring from the athletes a high degree of mental alertness and concentration. Thus, the reason why athletes may not be as successful as they might be is because they may not perceive when, where, or how to use their various skills.

The influence of athletes' mental states upon their physical states is almost impossible to specify with any certainty. To be superior in any sports setting athletes must have the focus of attention for the environment in which they perform (Cratty, 1973). It would seem that a soccer player must locate, select, and focus on the most relevant cues in order to be successful. Therefore, it seems that a means to assess this information processing capability might be useful for the purpose of predicting soccer success.

Nideffer (1976a) developed the Test of Attentional and Interpersonal-

Style (TAIS), which assesses the general attentional style of an individual from various situations presented on a self-report test. According to Nideffer attentional focuses consists of two dimensions--width and direction. The width dimension refers to a continuum from broad to narrow, and direction of attention may be either internally focused on thoughts and emotions, or externally focused on environmental stimuli. The two dimensions work in combination and, in most instances, a person can alter attention in either dimension at will. Thus, in any particular situation an individual's attentional focus may be broad external, broad internal, narrow internal, or narrow external. A specific attentional style may be effective in one situation but ineffective in another. Attentional styles need to match task demands to be effective.

The assessment of attentional behavior should be as situation-specific as possible, according to Nideffer (1976a). For instance, researchers who wish to examine the attentional styles of soccer athletes should use an assessment tool capable of capturing the essence of specific sport situations.

Another variable of soccer success which may be considered is visual disembedding. Rapid identification of cues is needed for visual disembedding (Witkin, Oltman, Raskin, & Karp, 1971). A soccer player must locate and select the relevant cues from a field of important and unimportant cues. Ability to locate and select relevant cues quickly is vital as a soccer player is constantly under pressure from an opponent.

It seems possible that attentional styles, as might well be the entire information processing system, are affected by the anxiety level of the performer. Anxiety has a vital impact on attention. There is a tendency for an individual to narrow attention and for attention to

become internally focused when highly anxious (Kahneman, 1973; Landers, 1980). Failure of a soccer athlete to deal with anxiety could mean tunnel vision and a detriment to performance. As in the assessment of attention, it would seem important to assess anxiety with a device that is situation-specific. Martens (1977) developed the Sport Competition Anxiety Test (SCAT) to measure competitive trait anxiety, which is the tendency to perceive competitive situations as threatening.

Self-perception may be another variable that is important in the prediction of competence in soccer athletes. It would seem that confidence in one's ability is an asset of the proficient soccer athlete. Harter (1978) stated that individuals with high self-esteem and perceived competence are found to have an internal locus of control and experience low levels of anxiety.

Self-report assessment device or devices for each of the following variables--perceived ability and success, attention, visual disembedding, and competitive trait anxiety--were administered to assess the relationship between perceived ability and success, attention, visual disembedding, and competitive trait anxiety.

Scope of Problem

This study examined the relationship of competitive trait anxiety, visual disembedding, and attentional styles of soccer athletes on perceived ability and success. A total of five tests were administered to 62 soccer athletes from Divisions I, II, and III of the collegiate level and the American Soccer League professional ranks. Self-report measures were used to collect data for each variable.

Attention was measured using two assessment devices. A test of soccer attentional style (TSAS was modified from Taylor's (1979) TSAS)

(Appendix A). The first 74 statements which form the Test of Attentional Style (TAS) of Nideffer's (1976b) Test of Attentional and Interpersonal Style were utilized (Appendix B). The TAS covers a broad range of general life situations and the TSAS is a more specific measure of attentional behavior among soccer athletes.

Competitive trait anxiety was measured by the Sport Competition Anxiety Test (SCAT) (Martens, 1977). The personal assessment questionnaire (PAQ) was utilized to determine self-report measures of perceived ability and success (Appendix C). Visual embedding was measured by the Group Embedded Figures Test (GEFT) (Witkin, Oltman, Raskin, & Karp, 1971).

The data collected on all five tests were computed to examine the relationship of attention, anxiety, and visual disembedding on self-perception. The data were subjected to multiple regression analysis and canonical correlation in order to assess the various relationships that existed within the data.

Statement of Problem

The relationship between perceived ability and success and the levels of competitive trait anxiety, attentional styles, and visual disembedding was examined in this study. Perceived ability and success were identified as dependent variables, while anxiety, visual disembedding, the six attentional scales of the TAS, and the seven scales of the TSAS served as the multiple independent variables. The data obtained from these measures were analyzed in an attempt to answer the following question: To what extent are soccer athletes' perceived ability and success, measured by the personal assessment questionnaire, a function of competitive trait anxiety, visual disembedding, and attentional style?

Hypotheses

1. Perceived soccer ability can be predicted from attentional style, visual disembedding, and competitive trait anxiety.

2. Perceived soccer success can be predicted from attentional style, visual disembedding, and competitive trait anxiety.

Assumptions of Study

The following assumptions were made:

1. The athletes were of an adequate level of experience to relate to the situations presented in the TSAS.

2. Possible position specialization among athletes would not effect their ability to relate to the situations presented in the TSAS.

3. The self-report measures were a precise and truthful self-assessment of behavior in the given situations.

4. The TSAS and the TAS statements were a substantial indication of specific styles of attentional-behavior.

5. The instruments were completed according to the researcher's directions.

Definition of Terms

The following terms were operationally defined:

1. Attention: the cognitive process of selectively narrowing or broadly focusing on internal thoughts and feelings or external environmental stimuli.

2. Attentional style: a composite of effective and ineffective attentional behaviors of an individual along the attentional dimensions of width (broad or narrow) and direction (internal or external).

3. Effective attention: when the individual's focus is properly adjusted to meet the attentional demands of a given situation.

4. Ineffective attention: when the individual's focus is inappropriate for a particular situation.

5. Width of attention: refers to the amount of information and the breadth of perceptual field an individual controls.

6. Direction of attention: refers to whether the focus is directed internally or externally.

7. Broad external focus of attention (BET): an effective type of attention in which the individual's attention is focused on the range of environmental cues.

8. Overloaded external focus of attention (OET): an ineffective type of attention in which the individual's attention is focused on too broad a range of environmental cues.

9. Broad internal focus of attention (BIT): an effective type of attention in which the individual's attention is focused on a range of cognitive and proprioceptive stimuli.

10. Overloaded internal focus of attention (OIT): an ineffective type of attention in which the individual's focus of attention is on too broad a range of cognitive and proprioceptive cues.

11. Narrow focus of attention (NAR): an effective type of attention in which the individual's focus is directed towards selected internal or external cues.

12. Narrow internal focus of attention (NIT): an effective type of attention in which the individual's focus is directed towards selected internal cues.

13. Narrow external focus of attention (NET): an effective type of attention in which the individual's focus is directed towards selected external cues.

14. Underinclusive focus of attention (RED): an ineffective type of attention in which the individual's focus is excessively reduced and directed towards too few internal or external cues.

15. Soccer athlete: a male member of a collegiate varsity soccer or an American Soccer League professional team.

16. Successful soccer athlete: an individual who self-reports that while playing soccer he has been "on winning teams," "recognized," "successful," "frustrated," "sad," and "uncertain" to some degree.

17. Less successful soccer athlete: an individual who reports that while playing competitive soccer he has been "on losing teams," "unnoticed," "unsuccessful," "frustrated," "sad," and "uncertain" to some degree.

18. High ability soccer athlete: an individual who reports that as a soccer player his ability is "above average," "good," "praised by the coach," "superior," "broad," "praised by others," "encouraging," "strong," and "better than most" to some degree.

19. Low ability soccer athlete: an individual who reports that as a soccer player his ability is "below average," "bad," "ridiculed by the coach," "inferior," "limited," "ridiculed by others," "frustrating," "weak," and "worse than most" to some degree.

20. Visual disembedding: refers to the ability to recognize and select detail even when it is confused by irrelevant material in the perceptual field.

Delimitations of Study

The following delimitations were made:

1. This study involved only male athletes meeting the minimum standard of college varsity soccer experience or higher.

2. General attentional styles were determined by the TAS with

respect to width and direction on six subscales (BET, OET, BIT, OIT, NAR, RED) through general situations.

3. Soccer-specific attentional styles were determined by the TSAS with respect to width and direction on seven subscales (BET, OET, BIT, OIT, NIT, NET, RED) through specific soccer situations.

4. The SCAT was a self-report assessment tool used as a measure of competitive trait anxiety.

5. The PAQ was a self-report measure of perceived ability and success.

6. The GEFT was a self-report measure of visual disembedding.

Limitations of Study

Procedures necessitated the following limitations:

1. The results of this study can only be generalized to soccer athletes who are considered similar to the athletes in this study.

2. Attention, anxiety, ability, success, and visual disembedding were examined only within the confines of the definitions provided and the tests used.

Chapter 2

REVIEW OF RELATED LITERATURE

This chapter consists of related literature concerning the task demands of soccer, as well as the relationship between perceived competence and attention, competitive trait anxiety, and visual disembedding.

Task Demands of Soccer

It seems critical that proficient soccer athletes possess certain characteristics to meet the task demands of soccer. Soccer is an open, rapid-paced game with a premium placed on processing a broad range of cues. And more importantly the ability to selectively ignore extraneous cues and the ability to recognize and respond to task relevant cues in the visual field is essential. This information processing, which is constantly going on in a soccer match, is key to the concept of concentration and/or attentional style.

The focusing of attention on the correct cues and the ignoring of extraneous ones are basic prerequisites for successful skill performance (Lawther, 1977). The proper attentional focus will be demonstrated in the quick recognition of a developing situation and in the speed with which the brain translates thought into action to deal with the situation (Clues, 1980). Soccer is very much a game of decisions requiring the selection of the most appropriate motor plan from a number of possible plans. In order to outthink opponents it is important to have the capacity to evaluate information accurately and to make decisions quickly.

In the game of soccer an attribute of the skilled performer is the

ability to monitor cues from the environmental display in addition to paying attention to the flight of the ball (Nettleton, 1979). From information obtained during the flight, the player is then able to predict the type and speed of movements that are required to intercept the ball. Offensive soccer players in possession of the ball control the ball with their feet but keep their eyes raised enough to observe the movements of the defensive players around them.

The visual perceptual attributes of an athlete are vital to the task demands of soccer. Soccer athletes have a lot of information to process when receiving a ball. Athletes, after controlling the ball, must look up and scan the whole field for open teammates to pass to. The inexperienced or less competent player will probably see total confusion, and in the confusion may have difficulty seeing an unmarked teammate to pass to. Players who are slow in making decisions--slow in recognizing an opportunity--cannot succeed (Beckenbauer, 1978). Lawther (1977) contended that skilled performers "catch" earlier cues and link them to appropriate responses. This early cue reading is necessary to recognize where teammates are and to estimate the distance, direction, and speed of an approaching defender. Competent players see and perceive moves ahead of their opponents and have the mastery of techniques to put their ideas into action.

Soccer is a complex and unpredictable series of events. Because it is a continuously moving team sport, with cues arising all around the participant, it would seem a necessity to be almost spontaneously aware of this information. The challenge for the soccer player is to learn what to attend to, when to attend to it, and how to be able to maintain that attention at the critical time (Nideffer, 1978).

Attention and Sport Performance

Attention can be broadly defined as task-oriented perceptual processing or the process of extracting information from ongoing events in a selective, active, economical way (Gibson & Rader, 1979). Nideffer (1976a) previously indicated that there are two dimensions of attention or concentration that are critical as predictors of a person's ability to perform effectively. The width dimension, either narrow or broad, refers to how much or how little an athlete attends to. And the direction dimension, either internal and external, refers to whether the focus is on one's own thoughts and feelings, or external toward the environment.

Nideffer (1976a) developed the Test of Attentional and Interpersonal Style (TAIS) in an effort to measure a person's ability to direct and control attentional processes, concentrate, analyze, and process information. The TAIS consists of six scales that categorize the ability of individuals to control width and direction of attentional focus. The broad external focus of attention (BET) is the ability to respond to many external stimuli at one time. The broad internal focus (BIT) describes a person's ability to attend to and integrate a variety of information from internal stimuli (e.g., thoughts, feelings, strategies). The narrow focus (NAR) is the capacity to narrow attention to concentrate effectively. The overloaded external focus (OET) occurs when individuals attempt to process all the cues arising in the environment, negating the processes of selection and reflection. The overloaded internal focus (OIT) describes the condition when individuals attend to their own thoughts and fail to shift and attend to the environment. Finally, the underinclusive attentional focus (RED) occurs to individuals who cannot shift from a

narrow focus to a broad focus.

To facilitate performance it is important that athletes know in advance the demands their particular sport makes on them with respect to attentional variables. Performance situations can be categorized on the basis of the attentional demands that the sport makes on the athletes. A majority of competitive situations require a rapid shift from internal to external focus (Nideffer, 1976b). Nideffer (1978) generalized that, in open skills that require the individual to be aware of and able to respond to a complex rapidly changing environment, athletes would find a broad focus to their advantage. This would be characteristic of an attacking situation in soccer where it is important to read the defensive keys. By contrast, a narrower focus is useful in intricate, complex closed skills where only one stimulus (e.g., a ball or an opponent) is relevant to the task. A free kick situation or shooting on goal would be categorized as a closed skill because a narrow focus on the ball would be needed to execute the skill. For successful soccer performance, athletes must be able to deal with the characteristics and demands of both open and closed skills that are present within a soccer match. Obviously, the less flexible the athletes' attentional styles are, the more difficulty they will have adapting to changing game conditions. For example, a soccer athlete has just been fouled in the penalty area. The athlete must forget the score, the past foul which may still be hurting, the goalkeeper's distractions, and other irrelevant stimuli on the field of play. The athlete must shift attention to the ball and the spot in the goal to be hit. Failure to do this may result in a poor attempt at the penalty kick.

Kahneman (1973) stated that individuals can selectively focus on

some stimuli in preference to others. Lawther (1977) further indicated that competent athletes exhibit the ability to concentrate on cues relevant for the task demands of their sport by filtering out irrelevant cues, even to the extent that they are ignored completely. In addition to selective attention, flexibility of attention in response to situation demands is an important determinant of successful soccer performance. The athlete must focus on thoughts and feelings and then switch the focus to environmental stimuli. It would appear vital that competent soccer athletes selectively attend to the task demands of soccer and be able to shift attentional styles.

It appears that flexibility of attention or the ability to shift styles when appropriate is important for different aspects of the game of soccer. Nideffer (1978) classified the optimal style for an offensive soccer player on a fast break as broad external. Athletes control the ball with their feet and focus on different cues that may indicate who they may pass to, which space they should dribble into, or whether to shoot or not. A broad external focus would also be important for defensive soccer athletes who must read what is happening as the ball is being moved around the field of play, as well as be able to defend an opponent and adjust to their movements. It is also important for offensive players without the ball to maintain a broad external focus in order that they read the defensive movements and recognize open spaces on the field while maintaining eye contact on the player with the ball.

In preparation for a game, or at a particular point during a game, soccer players might recall or develop a strategy as to how to beat a defender or defend their opponent. This would require a broad internal focus in order to recall past performances under similar conditions, how

one feels physically at that point in time, and strengths and weaknesses of opponents. A narrow external type of attention, however, is useful when a player must respond to very few cues and continue to maintain focus without distraction. This is evident in the technique aspects of soccer such as shooting, trapping, heading, and passing where athletes focus on the ball and ignore the irrelevant stimuli around them. If, when taking a shot on goal, the player responds to the challenging defender and concentration becomes broad on the defender instead of narrow on the ball, then performance will likely suffer. Soccer athletes may find a narrow internal focus useful to ignore pain and fatigue or self-defeating thoughts and attitudes, which may develop during a game.

The TAIS has been used to assess which attentional competencies in swimmers (Nideffer, 1976a), tennis players (Van Schoyck & Grasha, 1981), and riflemen (Landers & Courtet, 1979) are vital for successful performance. Although Nideffer (1976a) developed the TAIS for a variety of environments, it has been argued that sport-specific measures of attention are more precise estimates of attentional processes than is a general assessment instrument (Fisher, 1977; Martens, 1977). Unless relevant environmental variables are examined, insight into the corresponding processes between athletes and their environment is severely limited.

Sport-specific versions of Nideffer's TAIS have been constructed and compared with the TAIS in baseball (Ford, 1981), soccer (Taylor, 1979), tennis (Van Schoyck & Grasha, 1981), and volleyball (Massey, 1981). It was concluded from these studies that sport-specific measures of attention are more appropriate estimates of attentional processes in sport than is the general TAIS. Ford (1981) found that the sport-specific Test

of Batting Attentional Style differentiated between low and high batting averages groups while the TAS did not. Taylor (1979) found that soccer athletes of high perceived success and ability exhibited a broad external focus of attention on both the TAIS and the Test of Soccer Attentional Style (TSAS), while those of low perceived success and ability did not. Each of the six TSAS attentional scales differentiated soccer athletes of high and low perceived ability and success, while only two of the attentional scales on the TAIS did so. Van Schoyck and Grasha (1981) found that the sport-specific Tennis Test of Attentional Style showed a much more consistent relationship to tennis ability than the TAIS. Massey (1981) concluded that the sport-specific Test of Volleyball Attentional Style was more appropriate for identifying attentional behaviors (effective versus ineffective) among volleyball athletes than the general TAIS.

This evidence seems to indicate that, if one is to gain additional insights into the cognitive processes of athletes, one must consider the advantages of employing a sport-specific measure of attention rather than utilizing a more general measure of attentional processes.

Visual Disembedding

Visual disembedding is the ability to break up an organized visual field so that a part of it is perceived to be separate from the remainder (Pargman, Bender, & Deshaies, 1975). The characteristics attributed to field dependence-independence (Witkin, Lewis, Hertzman, Machover, & Wapner, 1954) hold implications for the applicability of such tests in the assessment of cognitive processes characteristic of athletes. If an individual's perception is strongly dominated by the overall organization of the surrounding field and parts of the field are experienced as fused,

then this is known as the field-dependent mode of perceiving. It would appear than proficient soccer players would be more field independent because they would be able to disembed or pick out certain cues or stimuli from the environment (visual field). This means soccer athletes would be able to separate the soccer ball or unmarked teammates as relevant cues from among the many irrelevant cues.

MacGillivary (1980) suggested the standard Rod and Frame Test or the Group Embedded Figures Test as the best test to measure visual disembedding. The Group Embedded Figures Test (GEFT) uses speed of response as one criterion of success. Certainly speed of cue processing and thoughts is vital in a rapid pace game like soccer. Whomever becomes the passer in a game of soccer becomes the team's quarterback for that moment. As the football quarterback the passer has to have a flexible plan of attack, and speed of response would seem critical because limited time is a factor.

Anxiety and Motor Performance

During competition, as the environment becomes more stressful, ability to control both the width and direction of attention decreases. Many researchers have discovered that high anxiety seems to narrow attention, and this narrowing can lead to performance decrements if the narrowed attentional style does not match the tasks demands (Easterbrook, 1959; Kahneman, 1973; Landers, 1980; Nideffer, 1976b; Wachtel, 1967). Soccer players cannot be successful if they allow excessive narrowing of attention. Narrowed attention results in what is called "tunnel vision," where an athlete is missing important cues. For example, soccer athletes who are highly anxious when receiving a ball will be over-concerned with the ball and not sufficiently concerned with surveying the field of play.

This narrowed focus would restrict the options available to the passer, limiting the choices for the play.

Wachtel (1969) suggested that highly anxious people narrow attention to such a degree that stable orientation cannot be maintained, and that this narrowing results in random, disorganized scanning in an effort to reestablish control over the perceptual process. Highly anxious individuals do not perform as well as low anxious individuals on complex motor tasks (Carron, 1968; Lawther, 1977; Weinberg & Genuchi, 1980). Highly anxious athletes may be expressing their anxiety in terms of subjective personal thoughts and feelings that are all negative in terms of good performance. Concentration may become internally focused instead of being directed toward meeting the task demands. Or, just as likely, an athlete's individualized psychological response to anxiety may be an inability to direct attetional width of focus.

Marten's (1977) Sport Competition Anxiety Test (SCAT) and Nideffer's (1976a) Test of Attentional and Interpersonal Style (TAIS) are self-report instruments which identify individuals with high competitive anxiety and an attentional focus that is inappropriate for the prescribed task. If athletes narrow their attention excessively when it should be broad, then they will score high on Nideffer's TAIS scale measuring underinclusion (RED) (focus is too narrow when it should be broad) (Landers, 1980). Individuals assessed to have high competitive trait anxiety measured by SCAT are more predisposed to perceive the objective competitive situation as threatening to the self and will consequently have higher levels of state anxiety responses prior to competition (Martens, 1977; Scanlan, 1975).

Weinberg and Genuchi (1980) demonstrated how narrowed attentional style

can produce performance decrements when attentional styles do not match the task demands of a complex skill. Using Martens' SCAT as a measure of competitive trait anxiety, Weinberg and Genuchi (1980) found that low levels of anxiety increased golf performance, while decreased golf performance was found with high levels of anxiety. Thus, the higher the anxiety and the more complex the competitive situation, the more difficulty athletes have because the narrowing focus does not allow them to react to, much less process, all the important information.

Comparison of results between golfers and soccer players is difficult from a predictive standpoint. Soccer is an open or interactive skill and golf is a closed skill (Rothstein, 1979). What is evident is that both sports consist of complex skills that require the ability to selectively process external stimuli. Excessive narrowing due to an increase in anxiety results in random, disorganized scanning in an effort to reestablish control over the perceptual process (Wachtel, 1967).

Mahoney and Avener (1977) studied gymnastic qualifiers and non-qualifiers for the 1976 Olympic Games. The more successful athletes reduced their arousal levels in the crucial moments just prior to competition while the less successful athletes failed to do so. Subjective self-reports from the less successful athletes suggest that they aroused themselves to a state of high excitement by conjuring up images which generated self-doubt and fear of failure. Similar results were shown with springboard divers (Siebold, 1979). It may not be the absolute level of arousal, but the ability of the athlete to control those levels which governs eventual sport performance. The critical factor may be the pattern of arousal change and the techniques used to effect change.

Anxiety may have one of the most pervasive effects on athlete's responses to competition (Fisher & Zwart, 1982). In a complex motor task such as soccer, athletes who possess high competitive trait anxiety are probably going to be unsuccessful due to the fact that anxiety narrows attention and limits cue selection and processing. What soccer athletes extract from sport environments would appear to be a function of their general disposition to be anxious in competitive sport settings plus their perceptions and expectations of self in specific situations. This assertion makes it necessary to look at self-perception as a salient variable of a successful soccer athlete.

Self-Perception

Each athlete's self-perception of competence affects the interaction of arousal and performance. If athletes' self-assessment of their skill or preparation for a specific contest is low, the effects of any increase in arousal may be magnified (Rotella & Bunker, 1978). Athletes who are highly aroused in preparation may see a detrimental effect on performance with an increase in arousal. This effect may be the direct result of the anxiety produced by the incongruence of the perceived demand of a situation compared to the perceived capabilities of the athlete (Rotella & Bunker, 1978).

It would seem apparent that athletes who are consistently successful will be confident in the outcomes of their sport performances. Bandura (1977) explained performance accomplishments as an important source of self-efficacy. The feelings of efficacy should allow an athlete to accomodate to the stress of competitive sport settings. Cognitive worry over the outcome should be minimal and this should result in decreased anxiety feelings, whereas failure in competitive sport settings would

lead to anxiety in mastery situations. Athletes' perceptions of their success and ability in sport environments leads them to expect certain outcomes as a result of the athletes' perceived competence.

Harter (1978) described the relationship between perceived competence, perceived control, and performance. When athletes assess their performance as positive, feelings of competence or self-esteem are increased. This leads to a sense of internal control over many outcomes Soccer atheletes who possess high self-esteem and perceived competence feel that they have control over their destiny and are able to maintain their attentional style because they are able to control their anxiety.

Summary

There are certain task demands that must be met if an individual is to be proficient in soccer. A soccer athlete must be able to recognize an opportunity quickly and make decisions quickly (Beckenbauer, 1978). A soccer athlete must have the ability to selectively ignore irrelevant cues and to recognize and respond to task-relevant cues in the visual field. The task demands reviewed in this chapter make it fairly clear that soccer is a complex perceptual task.

Attention is an individual's style for directing senses and thought processes to particular stimuli (Nideffer, 1976a). In addition to the direction dimension (internal or external), attention also varies along the width dimension (narrow and broad). Only when athletes' attentional styles and sport demands are congruent is sport performance maximized. An understanding of athletes' attentional styles can help explain past successes and failures in competitive situations (Nideffer, 1976a).

A central aspect of attention is the selecting of relevant cues to meet the task demands and this is vital in another important variable,

visual disembedding. Visual disembedding is the ability to pick out external stimuli from a visual field (Pargman, Bender, & Deshaies, 1975). Broad attention is necessary to extract a small figure embedded within a larger figure (Wachtel, 1967).

Anxiety has been found to narrow attention and this can lead to performance decrements if the narrowed attentional style does not match the task demands (Easterbrook, 1959; Kahneman, 1973; Landers, 1980; Nideffer, 1976b; Wachtel, 1967). Proficient athletes are able to reduce anxiety levels in crucial moments while less proficient are unable to do so (Mahoney & Avener, 1977).

Another variable that seems necessary to achieve competency in soccer is perceived ability and success. Athletes who are consistently successful will be confident in the outcomes of their sport performance (Bandura, 1977). Athletes who possess high self-esteem and perceived competence feel that they have control over their destiny and are better able to maintain their attentional style.

Chapter 3

METHODS AND PROCEDURES

The following chapter will deal with the methods and procedures used in this investigation. Selection of subjects, testing instruments, methods of data collection, scoring of data, and treatment of data will be described.

Selection of Subjects

The subjects in this study were 62 male athletes engaged in competitive soccer. All-American soccer athletes from Divisions I, II, and III, soccer athletes from Hartwick College and Syracuse University, and soccer athletes from two professional soccer teams in the American Soccer League--Detroit Express and Pennsylvania Stoners--were subjects. Informed consent forms explaining the intent of the study and ensuring confidentiality were given to, signed by, and collected from all subjects (Appendix D).

Testing Instruments

The following tests were administered to the subjects: the attentional portion of the TAIS (first 74 statements) (Appendix B), hereafter referred to as the TAS, a test of soccer attentional style (TSAS) (Appendix A), the Group Embedded Figures Test (GEFT), the Sport Competition Anxiety Test (SCAT), and the personal assessment questionnaire (PAQ) (Appendix C).

Nideffer's (1976a) TAS contains 55 attentional situations which relate to attentional behavior across a broad range of situations, randomly located in the first 74 items of the test. Six attentional

subscales are included, three of which represent effective behavior and three of which represent ineffective behavior. The effective scales are the broad external focus (BET), broad internal focus (BIT), and narrow focus (NAR). The ineffective scales are the overloaded external focus (OET), overloaded internal focus (OIT), and the underinclusive focus (RED). Subjects responded to each situation on a 5-point Likert scale ranging from "never" to "always." Construct validity has been reported for attentional subscales of the TAS (Nideffer, 1977). Test-retest reliability coefficients for the six attentional and 11 interpersonal scales ranged from .60 to .93 (Nideffer, 1976a).

The TSAS format was similar to that of the TAS. The 81 statements were a modification of the TSAS used by Taylor (1979) (Appendix B). Seven attentional subscales are included, four of which represent effective behavior--BET, BIT, narrow internal focus (NIT), and narrow external focus (NET)--and three of which represent ineffective attentional functioning--OET, OIT, and RED. Athletes responded to each statement on the TSAS in the same manner as on the TAS with the 5-point continuum ranging from "never" to "always."

The Group Embedded Figures Test (GEFT) deals with the athlete's ability to visually disembed (Witkin, Oltman, Raskin, & Karp, 1971). This test required the athlete to disembed simple geometric shapes from more complex patterns and outline the correct shapes in pencil. The GEFT consists of a practice session of seven problems to be completed in 2 minutes, and then two 5-minute test sections of nine problems each. The GEFT has a reported reliability estimate of .82 using the Spearman-Brown prophecy (Witkin, Oltman, Raskin, & Karp, 1971).

The personal assessment questionnaire (PAQ) is a measure of perceived

ability and success in soccer. Athletes responded to six bipolar adjectives to describe success and nine to describe ability, using the semantic differential technique with a 5-point scale (Appendix C). The PAQ was adapted from Coulson and Cobb's (1979) generalized expectancy of sport success scale, and has been shown to be reliable (internal consistency, $\underline{r}$ = .96; test-retest reliability, $\underline{r}$ = .90).

Martens' (1977) Sport Competition Anxiety Test (SCAT) is a measure of each athlete's competitive trait anxiety. SCAT is composed of 15 statements, 10 of which are designed to indicate trait anxiety behavior in competitive situations. Subjects answered each statement on a 3-point scale--"hardly ever," "sometimes," or "often." Test-retest correlation coefficients for the SCAT ranged from .70 to .80 (Martens, 1977).

Methods of Data Collection

A test packet was provided to each athlete containing: a #2 pencil, two answer sheets, informed consent form, directions to self-administer tests when necessary, and the GEFT, TSAS, TAS, PAQ, and SCAT. Some athletes completed the tests in groups administered by the researcher, while others self-administered the test at their convenience and mailed the answers back to the researcher. Beyond the presentation and directions in the test packet, no environmental controls were established. Each athlete was asked to read and sign the consent form. Emphasis was placed on completing the tests in the prescribed order (as a control procedure to minimize fatigue). Subjects who self-administered the tests were encouraged to divide the test into two sessions to break up the monotony. The first session consisted of GEFT and TSAS while the second session contained the TAS, SCAT, and PAQ. The GEFT was administered first as it was a timed test. After this, the subjects could work at their own rate.

Subjects were informed that tests could be completed in 65-70 minutes.

Scoring of Data

The data from the TAS and TSAS were submitted to the computer on computer answer sheets. The computer read the scores and assigned an appropriate value from 1-5 for each response. These data were then entered on a disk file for future use. The GEFT scores were obtained by comparing the forms the athletes had outlined with the correct forms on the answer key. The first section contained eight problems for practice purposes and was not scored. The score was the total number of correctly traced simple forms in the second and third sections combined.

The PAQ was scored in two parts. A separate score was hand-calculated from each of perceived ability and success. Both sets of data were obtained by giving a number value of 1 to 5 for each adjective pair, with 1 representing the most negative and 5 representing the most positive value.

The SCAT was also hand-scored and the sum of the responses indicated the athlete's score. The responses of the SCAT were given a number value of 1 to 3, 1 representing the negative and 3 representing the positive value according to instructions provided by Martens (1977).

Treatment of Data

Internal consistency of the TAS and TSAS was calculated using Cronbach's coefficient alpha analysis (Cronbach, 1951). To quantify the interrelationships among the 17 variables, Pearson product-moment correlation was used. Pearson correlations were followed by multiple regression analyses of attention, visual disembedding, and competitive trait anxiety on perceived ability and success. Canonical correlation was utilized to assess the multivariate relationship between the predictor

variables (perceived ability and success) and the outcome variables (attentional scales of the TAS and TSAS, competitive trait anxiety, and visual disembedding). In all cases, the .05 level of statistical significance was utilized.

Chapter 4

ANALYSIS OF DATA

The results of the investigation are presented in this chapter. The chapter is divided into the following sections: (a) internal consistency of the attentional scales of the Test of Attentional and Interpersonal Style (TAS) and the test of soccer attentional style (TSAS), (b) intercorrelations of attention, anxiety, visual disembedding, and perceived ability and success, (c) multiple regression analyses of the predictor variables (attention, anxiety, visual disembedding) with perceived ability, (d) multiple regression analyses of the predictor variables (attention, anxiety, visual disembedding) with perceived success, (e) canonical correlation of perceived ability and success with the predictor variables (attention, anxiety, visual disembedding), and (f) summary.

Internal Consistency of the TAS and TSAS

Internal consistency of the TAS and TSAS was calculated by Cronbach's (1951) coefficient alpha. Alpha reliabilities for each of the attentional scales of the TAS and TSAS are reported in Table 1. Two coefficients are listed for some scales. Coefficients appearing in parentheses are values adjusted to improve internal consistency by deleting items correlating negatively or below .10 with the scale as a whole (Appendices D and E). Adjusted reliability coefficients for the TAS varied from a low of .48 (NAR) to a high of .74 (BIT). Coefficients for the TSAS varied from .65 (NIT) to .84 (RED). On the whole, the TSAS was the more internally consistent of the attentional measures.

Table 1

Internal Consistency of the Test of Attentional Style (TAS) and Test of Soccer Attentional Style (TSAS)

Variables	TAS	TSAS
BET	.59	.76
OET	.69	.83
BIT	.43 (.74)[a]	.76
OIT	.62	.82
NAR	.04 (.48)[b]	NA
NET	NA	.68 (.73)[d]
NIT	NA	.65
RED	.42 (.52)[c]	.84

[a]Item 20 deleted and item 27 recoded.

[b]Items 4, 6, 18, 25, 26, and 32 deleted.

[c]Items 27, 48, 49, 69, and 74 deleted.

[d]Item 81 deleted.

Intercorrelations of Attention, Anxiety, Visual Disembedding, and Perceived Ability and Success

Pearson product-moment correlation assessed the relationships among all variables. Pearson r values among variables are reported in Table 2. Pearson r values ranged from a low of .01 (NETS and GEFT; OETN and GEFT) to a high of .87 (OITS and REDS).

TAS scales were only moderately related to similar scales on the TSAS. Pearson r values for like scales ranged from a low of .23 (NAR and NIT) to a high of .37 (NAR and NET). Examination of intercorrelations within TAS and TSAS scales revealed that the TSAS scales were not as discrete as the TAS.

No scales of the TAS were even moderately (r's ranged from .04 to .19) related to success or ability. Slightly higher r values (.18 to -.51) were found between TSAS items and perceived ability and success. Higher r values (.34 to -.51) were found between TSAS and perceived ability.

SCAT showed low correlations with perceived ability ($r = -.11$) and success ($r = -.24$). Comparison with the other predictor variables revealed the following moderate to low correlations ($r = .37$ to $.43$): OET, OIT, RED (TAS); OIT (TSAS). The SCAT correlations were slightly higher with TAS than with TSAS.

Visual disembedding revealed low correlations with perceived ability ($r = -.03$) and success ($r = -.14$). Comparison with the other predictor variables revealed moderate to low correlations ($r = .25$ to $-.35$) with two variables: BET and RED (TAS).

Multiple Regression Analysis

In order to assess the overall degree of relationship between a set of predictor variables (attention, anxiety, visual disembedding) and a

Table 2

Intercorrelations of Attention, Anxiety, Visual Disembedding, and Perceived Success and Ability

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. BETN	-50	58	-53	21	-56	30	-25	32	-22	37	25	-22	-17	25	-05	11
2. OETN		-37	72	-49	50	-22	29	-13	28	-44	-26	25	43	01	-14	-07
3. BITN			-32	28	-34	20	-15	29	-27	37	16	-10	-31	05	12	19
4. OITN				-43	61	-25	29	-13	30	-34	-31	32	41	-17	-16	-10
5. NARN					-10	17	-11	10	-24	37	23	-14	-33	-12	11	12
6. REDN						-10	38	-10	31	-22	-25	30	43	-35	-14	04
7. BETS							-76	63	-70	65	67	-77	-06	10	23	47
8. OETS								-49	79	59	-76	85	18	-11	-18	-39
9. BITS									-57	58	54	-51	-13	-07	36	46
10. OITS										-57	-74	87	37	-05	-36	-51
11. NETS											56	-59	-23	-01	18	34
12. NITS												-79	-22	-07	25	39
13. REDS													23	-04	-25	-47
14. SCAT														04	-24	-11
15. GEFT															-03	-14
16. SUC																55
17. AB																

Note. Decimals omitted.

p .05 = .25.

p .01 = .32.

single criterion measure (perceived ability and perceived success, in turn), the stepwise procedure of multiple regression was utilized.

Perceived Ability

Multiple regression of the predictor variables on perceived ability revealed the following five significant ($p < .05$) variables: OIT (TSAS), RED (TAS), BIT (TSAS), BIT (TAS), and RED (TSAS). These five variables predicted approximately 36% of the variance in perceived ability. This finding led to the acceptance of the first hypothesis that was stated as follows: perceived soccer ability can be predicted from attentional style, visual disembedding, and competitive trait anxiety. Although a significant percentage of variance was accounted for, it is important to note that 64% of perceived soccer ability was not explained by the predictor variables.

Multiple regression of TSAS, visual disembedding, and competitive trait anxiety on perceived ability revealed the following four significant ($p < .05$) variables: OIT (TSAS), BIT (TSAS), visual disembedding, and BET (TSAS). These four variables predicted approximately 33% of the variance in perceived ability. Eliminating the TAS resulted in only a 3% decrease in explained variance from the original prediction equation. The measure of general attention (TAS) contributed little to the predictive equation when the soccer specific measure (TSAS), competitive trait anxiety, and visual disembedding were already included.

Multiple regression of TAS, visual disembedding, and competitive trait anxiety on perceived ability revealed the following four significant ($p < .05$) variables: competitive trait anxiety, BET (TAS), OET (TAS), and NAR (TAS). These four variables predicted approximately 12% of the variance. When the TSAS was eliminated from the overall prediction of perceived ability, explained variance was reduced by 24%. Therefore, the

soccer-specific measure added appreciably to the prediction.

Multiple regression of TSAS variables on perceived ability revealed the following three significant ($p < .05$) variables: BET (TSAS), BIT (TSAS), and NIT (TSAS). These three variables predicted approximately 31% of the variance. Because the TSAS alone explained 31% of the perceived ability variance, this variable was nearly as good a predictor by itself as were all the predictor variables combined.

Multiple regression of TAS variables on perceived ability revealed the following three significant ($p < .05$) variables: NAR (TAS), BET (TAS), and OET (TAS). These three variables predicted approximately 8% of the variance. The TAS accounted singly for 8% of the perceived ability variance but the impact of the TAS on the prediction was further reduced because the TAS shared variance with competitive trait anxiety and visual disembedding. In reality, the TAS explained less than 5% of the unshared variance.

Comparison of the explained perceived ability variances by both the TAS and TSAS revealed that the soccer-specific attentional measure accounted for 23% more variance. On that basis the TSAS was the more valuable predictor.

Perceived Success

Multiple regression of the predictor variables on perceived success revealed the following six significant ($p < .05$) variables: BIT (TSAS), competitive trait anxiety, BET (TAS), RED (TAS), OIT (TAS), and BIT (TAS). These six variables predicted approximately 26% of the variance in perceived success. This finding led to the acceptance of the second hypothesis that was stated as follows: perceived soccer success can be predicted from attentional style, visual disembedding, and competitive

trait anxiety. Although a significant percentage of variance was accounted for, it is important to note that 74% of perceived soccer success was not explained by the predictor variables.

Multiple regression of TSAS, visual disembedding, and competitive trait anxiety on perceived success revealed the following four significant ($p < .05$) variables: BIT (TSAS), competitive trait anxiety, OIT (TSAS), and OET (TSAS). These four variables predicted approximately 21% of the variance in perceived success. When the TAS was eliminated from the regression equation, perceived success explained variance was reduced by 5%. The TAS made a moderate contribution to the overall prediction.

Multiple regression of TAS, visual disembedding, and competitive trait anxiety on perceived success revealed the following four significant ($p < .05$) variables: RED (TAS), competitive trait anxiety, OET (TAS), and NAR (TAS). These four variables predicted approximately 25% of the variance in perceived success. Subsequent elimination of the TSAS resulted in a 1% explained variance reduction in perceived success. The TSAS made a minimal contribution to the overall prediction compared to the TAS.

Multiple regression of TSAS variables on perceived success revealed the following four significant ($p < .05$) variables: OIT (TSAS), NIT (TSAS), OET (TSAS), and BIT (TSAS). These four variables predicted approximately 22% of the variance in perceived success.

Multiple regression of TAS variables on perceived success revealed the following three significant ($p < .05$) variables: RED (TAS), NAR (TAS), and OET (TAS). These three variables predicted approximately 22% of the variance in perceived success.

Both the TAS and TSAS were equal contributors to the prediction of

perceived success. Taken singly, each explained 22% of the variance. Earlier regression equations revealed that the TAS was slightly more significant to the perceived success prediction.

Canonical Correlation Analysis

The overall measure of the multivariate relationship between the outcome measures (perceived ability and success) and the predictor variables (attention, competitive trait anxiety, visual disembedding) reached statistical significance, $R_c = .61$, $\chi^2(30) = 42.31$, $p < .05$. The significant canonical correlation explained approximately 42% of the variance using the 1 - lambda approximation. This result further supported the acceptance of the first and second hypothesis. Examination of the canonical variates revealed the following relationship between the outcome measures and predictor variables:

High perceived ability ⟷ Moderately high underinclusive focus (RED--TAS), moderately high broad internal focus (BIT--TSAS), moderately low overloaded internal focus (OIT--TSAS), and moderately low underinclusive focus (RED--TSAS). This attentional profile characterized high perceived ability soccer athletes as being able to analyze the broad spectrum of their thoughts and strategies without becoming excessively overloaded or narrow. In non-sport situations, however, high perceived ability athletes tended to narrow attention too much, failing to include all of the task-relevant information.

Summary

Adjusted alpha reliabilities for internal consistency for the TAS varied from a low of .48 (NAR) to a high of .74 (BIT). The TSAS reliabilities varied from a low of .65 (NIT) to a high of .84 (RED).

Pearson product-moment correlations revealed low relationships

between TAS variables and perceived ability and success. Moderate relationships were found between TSAS variables and perceived ability and success. The r values were slightly higher for perceived ability than for perceived success with both TAS and TSAS. Multiple regression of the predictor variables on perceived ability revealed that the TAS explained little variance. The three prime variables predicting soccer ability were as follows: BET (TSAS), BIT (TSAS), and OIT (TSAS). Multiple regression of the predictor variables on perceived success revealed six prime variables that predicted soccer success: OIT (TAS), BIT (TAS), RED (TAS), BET (TAS), BIT (TSAS), and competitive trait anxiety.

Canonical correlation analysis revealed the following psychological profile of high soccer ability: moderately high RED (TAS), moderately high BIT (TSAS), moderately low OIT (TSAS), and moderately low RED (TSAS).

Chapter 5

DISCUSSION OF RESULTS

The results presented in chapter 4 will be discussed in this chapter. Topics include the following: internal consistency of the TSAS and the TAS; intercorrelations of attention, anxiety, visual disembedding, and perceived ability and success; prediction of perceived ability and success; the attentional style of soccer athletes; and summary.

Internal Consistency of the TSAS and TAS

Coefficient alpha reliabilities for the attentional scales of the TSAS and the TAS are reported in Table 1. Cronbach's (1951) alpha reliability is a measure of internal consistency, the degree to which each item relates to a specific scale. Those attentional scales of the TAS and TSAS with high alpha levels contain items which were answered in a homogeneous manner. Corrected reliabilities in parentheses represented reliabilities adjusted by deleting items correlating negatively or below .10 with the scale as a whole. Corrected alpha reliabilities ranged from .48 (NAR) to .74 (BIT) for the TAS, and .65 (NIT) to .84 (RED) for the TSAS.

An item analysis of which situations, if removed from a particular scale, would have some meaningful effect on the coefficient for the whole scale was derived from coefficient alpha analysis. From this analysis some interesting points may be drawn with special reference to the TAS scales with low alpha coefficients. The removal of item 20 and recoding of item 27 (see Table 1) from the BIT scale increased alpha from .43 to .74. The removal of items 4, 6, 18, 25, 26, and 32 from the NAR scale increased alpha from .04 to .48. The removal of items 27, 48, 49, 69, and

74 from the RED scale increased alpha from .42 to .52. The effect of removing these items from the TAS increased alpha to a level more alike that of the TSAS scales. The data suggest that the TSAS items, which had a specific frame of reference (i.e., soccer), were clearer and perhaps easier to interpret. As might be expected this contributed to the higher alpha levels with the TSAS. Ford (1981), Massey (1981), and Taylor (1979) all reported higher alpha levels for sport-specific attentional items than for the TAS. A specific frame of reference may make the item content less ambiguous and thus reduce the amount of error variance in the responses.

The corrected alpha coefficients were greater for each attentional scale of the TSAS than the corresponding TAS scale. Because the TAS situations were conceptually broader than those of the TSAS, they may have been open to greater interpretation by individuals. The wide range of life situations included in the TAS may also have led to response inconsistency. Response inconsistency on the TAS would tend to support the claim that attention is not generalizable enough to remain consistent across a broad range of life situations as well as specific situations (Taylor, 1979).

Nideffer's (1977) reliability and validity testing of the TAS seems rather minimal, and might account for the poor internal consistency of the TAS in this study. The apparent instability of several of the TAS scales should be taken into account by future investigators planning to use the TAS with populations and in situations other than those tested by Nideffer.

Intercorrelations of Attention, Anxiety, Visual Disembedding, and Perceived Ability and Success

There was only a moderate relationship between similar scales of the

TAS and TSAS. Pearson r values for like scales ranged from a low of .23 to a high of .37. It can be seen that two reasonably discrete attentional testing instruments were used due to the lack of commonality between similar scales of the two tests. Nideffer (1976a) recognized the need for assessment devices to be as situation specific as possible if psychological variables are to be examined in a particular setting.

Interscale correlations of the TAS were considerably lower than those of the TSAS. These high TSAS correlations (e.g., OET and OIT) indicate the commonality between the two scales. An analysis of the correlations suggests that the TAS has more separate and unique scales than the TSAS. On that basis, Nideffer's attentional test is a better assessment of the different attentional styles.

Slightly higher correlations were found between TSAS items and perceived ability and success. There were no scales of the TAS that were even moderately related to perceived ability and success. There was not one TAS item that correlated as high as the lowest TSAS correlation with perceived ability and success. Highest r values were found between TSAS and ability (.34 to -.51). It appears that the TAS has little predictive value for perceived ability and success. However, because the TAS subscales are more discrete and even though they each in turn explain limited variance, collectively the TAS may be a valuable predictor of perceived ability and success. Moreover, the issue of suppression and of multicollinearity (Farrar & Glauber, 1967) among TAS scales hampers the interpretation of the univariate relationships with perceived ability and success. The TSAS appears to be a better predictive measure of perceived ability and success but one must recall that the TSAS scales are not as discrete as the TAS. Univariately the TSAS scales explained more variance

than the TAS but collectively the TSAS may not be a better measure under the conditions of multicollinearity and suppression (Farrar & Glauber, 1967).

The likelihood that SCAT will be a significant predictor of perceived ability (r = -.11) and success (r = -.24) is not good when the correlations are examined. The correlations between SCAT and TAS are slightly higher than between SCAT and TSAS. It is rather surprising the SCAT, a measure of competitive (sport) trait anxiety, correlated higher with the general attentional test than the soccer-specific attentional scale. However, the slight difference does not seem to warrant any explanation. Attentional variables that correlated the highest (r = .37 to .43) with SCAT were as follows: OET, OIT, RED (TAS); and OIT (TSAS). On the surface SCAT appears to be a poor predictor of perceived ability and success, and when SCAT is loaded into the regression equation it will likely be even less of a predictor due to its shared variance with certain attentional variables. The above explanation holds only if the above mentioned attentional scales are significant predictors of perceived ability and success.

Visual disembedding revealed even lower correlations with perceived ability (r = -.03) and success (r = -.14) than did SCAT. BET and RED (TAS) showed moderate to low correlations (r = .25 and -.35, respectively) with GEFT. As with SCAT, GEFT appears to be a poor predictor of perceived ability and success. In subsequent analyses, the influence of GEFT will likely further lose its predictive value if BET and RED (TAS) are significant predictors of perceived ability and success.

Prediction of Perceived Ability and Success

Perceived Ability

Multiple regression of the significant predictor variables on

perceived ability accounted for 36% of the variance. A significant percentage of variance (64%) was not explained by the predictor variables. Although the predictor variables provided support for the first hypothesis, by explaining a significant amount of perceived ability variance, it is well known that other variables (e.g., motivation), ignored in the current study, are also related to athletic ability and skill. In other words, there was a significant percentage of variance accounted for when one considers the other unmeasured components which could contribute to the total perceived ability variance.

The significant predictor variables of perceived soccer ability were as follows: OIT (TSAS), RED (TSAS), BIT (TSAS), and RED (TSAS). Athletes who are overloaded internally do not possess the attentional abilities to successfully meet the task demands of soccer because effective performance during the course of a game is predicted on remaining external (both broad and narrow) in order to select and act upon the proper environmental cues. Similarly, athletes with reduced attention make mistakes because they narrow attention excessively and fail to include all the task-relevant information. It would seem that in the game of soccer, a single cue or action would not yield enough information to allow one to make correct decisions. Athletes whose focus is broad and internal effectively integrate ideas and information from several different areas, and plan a variety of strategies for whatever contingency arises.

Soccer players of high perceived ability would be expected to maintain a broad focus of attention because of the task demands of the sport. Athletes who have tunnel vision would not possess the attentional abilities to successfully meet the task demands of soccer, because valuable cues essential to performance would be ignored. Pearson r values between the

TSAS scales broad external and broad internal and perceived ability showed moderately high relationships (r = .47 and .46, respectively). These moderately high correlations make the broad focus appear on the surface to be an important variable in the prediction of perceived ability. It was anticipated that the broad focus of attention would be critical for athletes in an open, rapid-paced game such as soccer. Soccer is a game of decisions requiring the selection of the most appropriate motor plan from a number of possible plans. Soccer athletes after controlling the ball must look up and scan the field for open teammates to pass to. This would require the athlete to shift attentional focus. For example, a broad external focus of attention would be needed for a player with the ball to scan the field of play for an open teammate to pass to. After scanning the field, the athlete would need to shift attention to broad internal to decide when and how to pass the ball.

The TSAS alone explained 31% of the perceived ability variance, only 5% less than the variance explained by all the predictor variables combined. The TSAS scales that significantly predicted soccer athletes' perceived ability were BET, BIT, and NIT. What is of great significance here is that all of these variables are effective attentional scales in Nideffer's conceptualization.

The broad external focus is necessary to effectively integrate many environmental stimuli at one time. By being broad and external soccer players can read cues from the field of play as well as maintain eye contact on the player with the ball. Because soccer is an unpredictable series of events, with cues arising all around the participant, it would seem a necessity to be almost spontaneously aware of this information.

Broad and internal refers to an attentional style which assesses the degree to which an athlete can anticipate what will occur next on the field of play. Athletes enhance their performance by pre-selecting cues that may occur in the sport environment.

The narrow internal focus refers to the ability to narrow attention to concentrate effectively. Athletes are able to effectively develop or maintain a focus on individual thoughts or strategies that would be appropriate for the specific task demands of soccer.

The TAS singly accounted for only 8% of the perceived ability variance. A comparison of the explained perceived ability variances of both the TAS and TSAS revealed that the soccer-specific attentional measure accounted for 23% more variance. On that basis the TSAS was the more valuable predictor, which supports the claim for situation-specific assessment devices. Fisher (1977) and Martens (1977) both have argued that sport assessment devices should be as situation-specific as possible. The relative ineffectiveness of the TAS can be explained by its lack of specific soccer situations. Other evidence that supports this specificity conclusion was found when the TSAS was eliminated from the overall prediction of perceived ability. Explained variance was reduced by 23%. These results show that the soccer-specific measure added appreciably to the prediction.

Similar results were shown when SCAT and GEFT were combined in turn with TSAS and TAS to predict perceived ability. TSAS, SCAT, and GEFT were better predictors of soccer ability than TAS, SCAT, and GEFT. The SCAT and GEFT, however, contributed little to the explanation of variance. This may be due to the ineffectiveness of the SCAT and GEFT to capture the specificity of perceived soccer ability, or due to their shared variance

with significant predictor variables.

Perceived Success

Multiple regression of the significant predictor variables on perceived success accounted for 26% of the variance. As was discussed with perceived ability, this is a significant percentage of variance considering that other variables (e.g., motivation), ignored in the current study, are also related to athletic success. BIT (TSAS), SCAT, BET (TAS), RED (TAS), OIT (TAS), and BIT (TAS) were the variables that accounted for the perceived success variance.

Broad and internal focus refers to an effective attentional style (Nideffer, 1976b) in which the focus is on internal stimuli (e.g., strategies, performance options). By being broad and internal, the athlete is able to anticipate what might occur next on the field of play and be ready to deal with that situation.

Competitive trait anxiety was not a significant predictor of perceived soccer ability in combination with attentional variables. However, when all predictor variables were regressed on perceived success the SCAT made a significant contribution to the overall prediction. The correlation between SCAT and perceived success (r = -.24) exceeded that between SCAT and perceived ability (r = -.11). In a univariate sense, SCAT explained more perceived success variance. Additionally, the correlations between SCAT and the other predictor variables were of such magnitude (e.g., r = -.13 with BIT (TSAS) and -.17 with BET (TSAS)) that SCAT captured some unexplained variance. The perception of threat produces anxiety which tends to narrow athletes' attention excessively (Kahneman, 1973; Landers, 1980). This narrowed attentional style is not appropriate for soccer players as they must interact with numerous cues (e.g., other

teammates, opponents, ball movement).

Being broad and external involves perceiving, selecting, and processing relevant environmental cues. By being broad and external, athletes enhance the probability that they will recognize early cues and consequently have a longer time in which to make performance decisions.

The underinclusive (RED) focus is an ineffective attentional style in which attention is reduced and directed toward internal or external cues (Nideffer, 1976b). Athletes with reduced focus, or tunnel vision, narrow their attention by selectively attending to isolated cues and this prevents them from capturing the entire environment.

Overloaded and internal is an ineffective type of attention in which the focus is directed toward a range of cognitive stimuli (Nideffer, 1976b). Internally overloaded athletes think of too many things at once and are confused by multiple thought patterns. For example, a soccer player may be worrying about defending an opponent, offensive positioning, and scoring the winning goal, all simultaneously. Soccer athletes who pay attention to irrelevant cues predispose themselves to soccer failure.

It was not surprising that BET, RED, OIT, and BIT were found to contribute to the prediction of perceived success because they were also influential in the prediction of perceived ability. What is of interest is that nearly all predictor scales belong to the general attentional style test (TAS), with the exception of BET (TSAS) and SCAT. This evidence was not congruent with the prediction of perceived ability results. Significant explained variance in perceived success, due largely to TAS, supports the claim of Nideffer (1976a) that the TAS has some predictive validity for attentional behavior in specific environments.

One possible explanation for the ineffectiveness of the TSAS in

predicting soccer is that soccer is a team sport and, thus, soccer players must interact with other athletes. The playing effectiveness and the success of individual athletes is partially controlled by the players around them. Perhaps the testing instrument does not capture the subtleties of success in a team context. If perceived soccer success has a more general focus than perceived soccer ability, then this fact might lead to reduced predictive capabilities of the soccer-specific attentional test.

Although it was speculated that the TSAS would be a better predictor of perceived soccer success, this did not hold true in this study. The TAS and TSAS made an equal contribution (22%) to the overall prediction of perceived success when they were regressed alone. When combined with other predictor variables, the TAS was a slightly better predictor of perceived success. This became evident when the TAS and TSAS, in turn, were eliminated from the regression equation. The perceived success explained variance was reduced by 5% when the TAS was eliminated from the regression equation, and 1% when the TSAS was eliminated. Both tests provided empirical evidence in support of attentional style as an important factor in perceived soccer success.

Attentional Style of Soccer Athletes

Canonical correlation revealed that high perceived ability was predicted by moderately high RED (TAS), moderately high BIT (TSAS), moderately low OIT (TSAS), and moderately low RED (TSAS). These four variables explained approximately 42% of the variance. There were no trends for successful soccer athletes to be found in this study.

RED (TAS) is an ineffective attentional style in which the focus is excessively reduced. High RED indicates that athletes make mistakes

because they narrow attention too much, failing to include all of the task relevant information. Soccer athletes in general life situations, as measured by the TAS, were shown to have tunnel vision, but interest-interestingly enough this was not the case when the athletes were in soccer-specific situations. Canonical correlation revealed that high perceived ability soccer athletes did not reduce their attention too much in the soccer environment. As long as athletes are not reducing attention excessively in the sport environment, then the important attentional task demands may be better met. This points out that caution must be exercised if sport predictions are attempted with general inventories.

The broad and internal focus refers to an effective attentional style in which the focus is on internal stimuli. By being broad and internal, the athlete is able to anticipate what will occur next on the field of play. Anticipation is actually the internal cognitive and affective processing of the situation (e.g., recalling past performances, strengths, and weaknesses of opponents). The ability to synthesize experience and environmental cues in order to plan ahead would seem to be a requisite of proficient soccer ability. A broad internal focus speaks to an internal readiness. Therefore, athletes may enhance their performance by pre-selecting some cues that are likely to appear. For example, a defender who receives the ball in the penalty area knows it must be cleared out of the defensive area on the first touch.

Overloaded internal is an ineffective type of attention in which the focus is directed toward a range of cognitive stimuli. Canonical correlation revealed that high soccer ability was predicted by low OIT. Athletes who are internally overloaded have an inappropriate attentional

focus as with the reduced attentional focus but for different reasons. Internally overloaded athletes think of too many things at once and are confused by multiple thought patterns. Similarly, soccer performance may deteriorate if an athlete attempts to think about too many things at the same time.

In examining the task demands of soccer it appears evident that a broad focus on the environmental cues is important to performance. The BET scale, however, did not appear as an effective predictor variable of perceived soccer ability. Perhaps what appears so evident is not supportable by data and some rethinking about the task demands of soccer is in order. It is possible that during a soccer match there is not time to look, process all the information, and then make a decision. Beckenbauer (1978) stated that soccer players slow in making decisions cannot succeed. This may be true in part, but what must be examined is that there is not an abundance of time to look, decide, and react. Perhaps what is more important is that athletes know what they have to do and proceed with a plan of attack to maximize their strengths. It is relatively easy to read cues but not everyone has the internalization to follow the selected cues with appropriate actions. It appears that it is this internal quality assessed by the BIT scale that is important to soccer.

Evidence from the TSAS interscale correlations points out that the predictive value of BET may have been negated by other variables whose correlations with BET were moderately high. BIT, OIT, and RED all correlated significantly with BET. Because of its shared variance with certain other attentional variables, BET was less likely to discriminate perceived soccer ability.

Summary

Cronbach's (1951) alpha reliability revealed that alpha coefficients were greater for each attentional scale of the TSAS than the corresponding TAS scale. Therefore, the TSAS was more internally consistent than the TAS.

Only moderate relationships (r = .23 to .37) were found between similar scales of the TAS and TSAS. This substantiated that the two attentional tests were reasonably discrete.

Slightly higher correlations were found between the TSAS and perceived ability and success than between the TAS and perceived ability and success. The TAS did not have one scale that was even moderately related to perceived ability and success although individually the TAS scales were more discrete than the like scales of the TSAS. SCAT and GEFT both revealed low correlations with perceived ability and success, and both lost some of their predictive value due to their shared variance with certain attentional variables.

Overloaded internal, broad internal, and underinclusive scales of the soccer attentional style test and the underinclusive scale of the general attentional style test were the significant variables that accounted for 36% of the perceived ability variance. Broad external, broad internal, and narrow scales of the TSAS alone accounted for 31% of the perceived ability variance. BET, BIT, and NIT are all effective scales of the TSAS, and tend to address the expected attentional demands of soccer. High perceived ability soccer athletes tended to process external cues, rehearse and ready internal strategies, and were able to narrow attention when necessary. The soccer-specific measure was the better predictor of perceived soccer ability.

The broad internal scale of the TSAS, SCAT, and BET, RED, OIT, and BIT scales of the TAS were the significant predictor variables ($\underline{R}^2$ = 26%) of perceived soccer success. High perceived success soccer athletes tended to rehearse and ready internal strategies (in both sport and non-sport situations) without becoming overloaded. Additionally, they handled the stress of competitive sport situations without excessively narrowing their attention generally.

The TAS was a slightly better predictor when combined with other predictor variables. Although both the TAS and TSAS were important factors in the prediction of perceived soccer success, the significance of the TAS supports Nideffer's (1976a) claim that the TAS has some predictive validity for attentional behavior in specific environments.

Canonical correlation revealed that high perceived ability soccer athletes were characterized by a high underinclusive focus in general situations but just the reverse in soccer situations. This attentional style was accompanied by a high broad internal focus without the tendency to be overloaded. Soccer athletes need to know what they have to do. In other words, they must internalize a plan of attack and try to maximize their strengths without internalizing too many things at once during the contest. It does not seem possible for a player during a contest to take time to look, process all the information, and then make a decision. Instead athletes enhance their performance by pre-selecting cues that likely will appear. These findings appear to support the specificity hypothesis that general attention cannot explain equally well variance in both general and sport environments.

Chapter 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study investigated the relationship between perceived ability and success and the four predictor variables of general attention, soccer-specific attention, visual disembedding, and competitive trait anxiety. College and professional soccer players ($N = 62$) completed the following five tests: test of soccer attentional style (TSAS), Test of Attentional Style (TAS), Group Embedded Figures Test (GEFT), Sport Competition Anxiety Test (SCAT), and personal assessment questionnaire (PAQ).

Internal consistency of the TAS and TSAS was calculated using Cronbach's coefficient alpha analysis. The TSAS exhibited higher internal consistency.

To quantify the interrelationships among the 17 variables, Pearson product-moment correlation was used. The moderate relationships between similar scales of the TAS and TSAS revealed that the two attentional tests were reasonably discrete and measured dissimilar constructs.

Lower TAS interscale correlations revealed the TAS scales to be more separate and unique than those of the TSAS. In essence, the TAS scales appear to better capture the dimensionality of Nideffer's (1976a) attentional model. The TSAS scales were correlated slightly higher with perceived ability and success than the TAS scales. Both SCAT and GEFT showed low correlations with perceived ability and success.

The stepwise procedure of multiple regression was used to assess the relationship between the predictor variables and a single criterion

measure (perceived ability and perceived success, in turn). Perceived soccer ability was predicted by OIT (TSAS), RED (TAS), BIT (TSAS), and RED (TSAS) when all predictor variables were regressed. There was only a 5% loss of explained variance when the TSAS was regressed alone with perceived ability. The significant predictor variables were BET, BIT, and NIT. High perceived ability soccer athletes tended to process external cues, rehearse and ready internal strategies, and also were able to narrow attention under certain conditions. The TSAS data, in comparison with TAS, supports the claim for sport-specific assessment devices.

BIT (TSAS), SCAT, BET (TAS), RED (TAS), OIT (TAS), and BIT (TAS) accounted for 26% of the perceived success variance. High perceived success soccer athletes tended to rehearse and ready internal strategies (in both sport and nonsport situations) without becoming overloaded. Additionally, they handled the stress of competitive sport situations without excessively narrowing their attention generally.

When regressed alone, both the TAS and TSAS made an equal contribution ($\underline{R}^2$ = 22%) to the overall prediction of perceived success. When combined with other predictor variables, the TAS was a slightly better predictor of perceived success. This evidence supports Nideffer's (1976a) claim that the TAS has some predictive value in specific sport situations.

From canonical correlation analysis, high perceived soccer ability athletes were characterized by moderately high RED (TAS), moderately low RED (TSAS), moderately high BIT (TSAS), and moderately low OIT (TSAS). These four variables explained 42% of the variance. This is a significant percentage of explained variance when one considers the other unmeasured components which could contribute to the total perceived ability variance.

High RED (TAS) is a general measure of attention and, thus, does not capture the attention needed in the soccer environment. High ability soccer athletes tended to narrow attention effectively and preselect cues that were likely to appear, although they did not internalize too much that they became overloaded. Soccer athletes do not have time to look, process all the information, and then make a decision. What appears more important is that athletes know what they have to do and internalize a plan of attack to maximize their strengths in particular situations.

Conclusions

The results of this study yielded the following conclusions regarding the relationship between perceived ability and success and the four predictor variables of general attention, soccer-specific attention, visual disembedding, and competitive trait anxiety:

1. BET, BIT, and NIT of the TSAS were significant variables as predicted by the task demands of soccer. Soccer athletes have to process external cues (although less than was anticipated), rehearse and ready internal strategies, and also narrow attention under certain conditions.

2. The utility of the TAS as a predictor variable of perceived soccer ability and success is not significant enough to warrant its use in future studies of attention in sport-specific environments.

3. The TSAS exhibited higher internal consistency than the TAS which indicates that the TAS should be examined carefully before being used again.

4. The perceived success items seem rather general and may be the reason that it related more to the TAS. The PAQ is questionable in itself, due to the general and vague items that lack a specific soccer reference

athletes could relate to.

Recommendations

The following recommendations for further study were made after the completion of this investigation:

1. A large scale study should be conducted with soccer athletes whose ability and success differs widely, in order to assess the differentiating capacity of the TSAS.

2. A large scale factor analysis of the TSAS scales should be conducted to assess the discreteness of the TSAS scales and the elimination of overlapping test items.

3. The issue of suppression and multicollinearity in attentional scales should be considered prior to future analysis of multiple predictor variables.

4. Based upon the results of the current study and those reported in the literature, consideration should be given to the elimination of the TAS when measuring attention in sport. The TAS tends not to explain as much meaningful variance as does the sport-specific measure.

5. An objective measure of ability and success should be developed to increase the validity of the criterion measures.

6. A soccer-specific anxiety test should be constructed because the SCAT is a general sport anxiety test, and it is not generalizable across specific sport environments.

7. Tests of attentional style should be developed for other sports using appropriate situations to represent the seven attentional scales used by the TSAS in this study.

Appendix A

TEST OF SOCCER ATTENTIONAL STYLE

INSTRUCTIONS

USE NO. 2 PENCIL. DO NOT WRITE ON THE TEST BOOKLET

Read each item carefully and then answer according to the frequency with which it describes you or your sport behavior. For example, item 1 is "I am in a tight situation with the ball and notice another player out of the corner of my eye. I assume he is on my side and pass, only to see that I have given the ball to an opponent."

A = NEVER

B = RARELY

C = SOMETIMES

D = FREQUENTLY

E = ALWAYS

If your answer to the first item is SOMETIMES, you would darken C on the answer card for item number 1. The same key is used for every item, thus each time you mark an A you are indicating NEVER, etc.

1. Please be sure to mark your name in the space provided at the top of the answer sheet.

2. Fill in your school's name in the space following "Course:" at the top of the answer sheet.

Appendix A (continued)

1. I am in a tight situation with the ball and notice another player out of the corner of my eye. I assume he is on my side and pass, only to see that I have given the ball to an opponent.

2. The coach has instructed me to do something I disapprove of. My performance suffers, while I think about the instructions and my own feelings.

3. I talk or think to myself as I plan my next move. For example, ". . . if I pass to him, he can pass back to me there . . . ."

4. I have just been badly fouled. Now I see the responsible opponent with the ball and I tackle him hard, giving away an unnecessary free kick.

5. I have just made an important mistake. My teammates assure me that it was not completely my fault, but I continue to think about the error and make more mistakes.

6. Faced with only the goalkeeper to beat I have to decide to chip or place the ball to the side past him. I fail to decide positively enough and shoot weakly at the goalkeeper.

7. I tend to give the ball away in a complex situation, or do something hurriedly or instinctively, rather than stopping to think.

8. I am instinctively aware of my position on the field, relative to other players, the field markings and goals.

9. When I am tired I tend to make a lot of mistakes and lose concentration on the game.

10. The game has just begun and the opposition is attacking strongly. I have difficulty in concentrating on all the players moving around me.

11. I have been sitting on the substitute's bench for most of the game and have developed strong feelings against the coach. When finally called upon in the last 5 minutes I am unable to concentrate on the game.

12. I make more mistakes in a crowded penalty area than in other areas of the field where there are fewer players at any one time.

13. I see two uncovered teammates, one requiring a short pass, the other needing a longer pass. I give the ball away with neither a long nor short pass, unable to decide which to pass to.

14. I am surrounded by opponents, but still tend to find a free teammate to pass to.

15. There are moments when I am not aware of where my teammates are during a game.

Appendix A (continued)

16. While the coach shouts to me during a game my performance declines as I try to listen to the instructions.

17. I notice a teammate in a good position and continue to try to pass to him, ignoring another player in a better position.

18. I have just been strongly warned by an official. I play less competitively as the thoughts of being sent off the field continually distract me.

19. I would rather play in a one-on-one situation than when more players are involved and I have to be aware of many more possibilities.

20. I am in a defensive wall in front of goal. When a shot at goal comes I instinctively tense up to protect myself, perhaps leaving a gap in the wall.

21. I see two teammates both unmarked and unable to make a decision which to pass to, I pass to a point placed between both of them.

22. When I am actually playing, I am almost totally unaware of the spectators.

23. I remember previous errors and quickly make appropriate adjustments, in terms of my position on the field for example.

24. In important games excessive pressure to do well causes me to make mistakes, particularly at the beginning.

25. The playing area is very muddy or it is very cold and raining hard. My mind is on the hot showers after the game.

26. I can observe a situation and think ahead.

27. An opponent is about to dribble past me. I remember which side he usually takes the ball and I am able to anticipate his move and tackle the opponent when he tries to dribble in that direction.

28. I remember social or personal problems during a game.

29. My friends are watching and I set out to impress them with a long dribble.

30. I am faced with an advancing goalkeeper in a one-on-one situation. I decide whether to shoot or dribble past the goalkeeper and concentrate closely on my plan.

31. During a game my mind seems "blank" and many of my actions lack purpose.

32. I can quickly recognize other's mistakes and make up for them.

Appendix A (continued)

33. I get lost in the game so intensely that I am not aware of the coach or captain shouting instructions while I play.

34. I can anticipate certain moves and often make interceptions.

35. I am supposed to cover an opponent. The referee makes a call and I dispute the call. I fail to see my own man making a run toward the goal.

36. I have just scored or done something exceptional. I sit back on my performance, with the feeling that I have earned my place on the team for the rest of the match and the next game.

37. A teammate has just strongly complained to me after I failed to pass to him in a good position. I receive the ball again and make an extra effort to pass to him but this time he is tightly covered and I give the ball away unnecessarily.

38. I have been fouled but the referee waves the play on. I immediately run after the official and continue to complain, forgetting the game.

39. I make an important mistake, but quickly remove distracting negative feelings.

40. I get very frustrated when a teammate is performing poorly.

41. I lose possession of the ball when I could have passed to several teammates all calling for the ball and in good positions.

42. My performance deteriorates considerably on a bumpy field.

43. It is equally easy for me to concentrate against less skilled and more skilled opponents.

44. While playing I am constantly analyzing the game.

45. When I am performing I "coach" myself mentally with instructions.

46. I am about to receive a pass. An opposing player, waiting right behind me, nearly broke my leg in a similar situation, only 1 minute earlier. I fail to control the ball.

47. When teammates complain that I should have passed to them I reply honestly that I never saw or heard them.

48. I can usually stay "up" and confident even through one of my poorer performances.

49. If my performance has begun poorly, I am able to forget about that and concentrate on the game.

Appendix A (continued)

50. I am faced with an advancing goalkeeper in a one-on-one situation. I decide to chip the ball over the goalkeeper, but he advances too quickly and I fail to change my plan and chip hopelessly into the goalkeeper's arms.

51. I would describe myself as a constructive player, recognizing obscure openings and making "intelligent" use of the ball.

52. It is equally easy for me to concentrate when playing either at home or away.

53. When playing away from home I may be distracted by the new surroundings particularly just before the game and early in the match.

54. I make an important mistake, but am not affected by the error as I continue to be involved in the game.

55. I am easily beaten in two-on-one situations because I can't take in all the information and tend to rush in without stopping to think.

56. In important games excessive pressure to do well may lead me to do things hastily without slowing down to think.

57. Time is rapidly running out for my team to tie the game. I begin to do desperate things, such as shooting from too far out or trying to dribble through the whole opposing team.

58. I am aware of how moves are developing around me.

59. I am worried about playing against a superior team or against a much better player.

60. I am in the act of shooting when an opponent shouts or waves him arms in an attempt to put me off. I am distracted by this.

61. I tend to lose concentration just before half-time.

62. I seem to be constantly aware of where the boundaries of the field and goals are without always checking first.

63. I am constantly aware of where the opposition are during a game.

64. When I make a mistake, I have trouble forgetting it and concentrating on my ongoing performance.

65. I am about to shoot when I see or hear a teammate in a slightly poorer scoring position. I am distracted by this.

66. I am accused of "ball watching" by the coach.

67. I pass to players in off-side positions without thinking.

Appendix A (continued)

68. I see a situation and recall a move practiced previously or suggested by the coach, and begin to put it into operation.

69. I tend to put my head down and run into tight situations with little teammate support.

70. I am supposed to cover an opponent. I am tempted to follow the ball, leaving my own man free.

71. I am in a one-on-one situation against the goalkeeper, but a defender approaching from behind distracts me and I shoot huriedly, badly missing the opportunity to score.

72. Despite the noise of the crowd I am able to pick out my coach's voice from our bench. I listen to his direction and I make the proper adjustment.

73. I have the ball in a three-on-one situation but lose it easily as I fail to decide who to pass to and when.

74. When I am slightly injured and continue to play I tend to make a lot of mistakes and lose concentration on the game.

75. I am able to watch opposing players' movements and respond appropriately.

76. I put my head down and dribble, unaware of my teammates and opponents other than those immediately around me.

77. I lose the ball after failing to hear or see an opponent running up behind me.

78. A teammate calls for a pass. By the time I have passed he is covered and an opponent wins the ball easily.

79. I have just missed an easy chance to score and I am criticized by my teammates and coach. I get another easy chance a minute later but cannot concentrate and I miss the opportunity.

80. I consciously "talk to myself" while I am performing.

81. A ball is kicked in the air into our defensive penalty area. Despite being crowded by my opponents, I focus on the ball, jump up strong and head the ball high, far, and wide out of the penalty area.

Appendix B

TEST OF ATTENTIONAL AND INTERPERSONAL STYLE

Robert M. Nideffer, Ph.D.

INSTRUCTIONS

USE NO. 2 PENCIL. DO NOT WRITE ON THE TEST BOOKLET

Read each item carefully and then answer according to the frequency with which it describes you or your behavior. For example, item 1 is "When people talk to me, I find myself distracted by the sights and sounds around me."

A = NEVER

B = RARELY

C = SOMETIMES

D = FREQUENTLY

E = ALWAYS

If your answer to the first item is SOMETIMES, you would mark with a No. 2 pencil under C for item number 1. The same key is used for every item, thus each time you mark an A you are indicating NEVER, etc.

1. Please be sure to mark your name in the spaces provided at the right of of the answer sheet.

2. Fill in your date of birth in the spaces provided at the bottom of the answer sheet.

Appendix B (continued)

1. When people talk to me I find myself distracted by the sights and sounds around me.

2. When people talk to me I find myself distracted by my own thoughts and ideas.

3. All I need is a little information and I can come up with a large number of ideas.

4. My thoughts are limited to the objects and people in my immediate surroundings.

5. I need to have all the information before I say or do anything.

6. The work I do is focused and narrow, proceeding in a logical fashion.

7. I run back and forth from task to task.

8. I seem to work in "fits and starts" or "bits and pieces."

9. The work I do involves a wide variety of seemingly unrelated material and ideas.

10. My thoughts and associations come so rapidly I can't keep up with them.

11. The world seems to be a booming buzzing brilliant flash of color and confusion.

12. When I make a mistake it is because I did not wait to get all of the information.

13. When I make a mistake it is because I waited too long and got too much information.

14. When I read it is easy to block out everything but the book.

15. I focus on one small part of what a person says and miss the total message.

16. In school I failed to wait for the teachers' instructions.

17. I have difficulty clearing my mind of a single thought or idea.

18. I think about one thing at a time.

19. I get caught up in my thoughts and become oblivious to what is going on around me.

20. I theorize and philosophize.

Appendix B (continued)

21. I enjoy quiet, thoughtful times.

22. I would rather be feeling and experiencing the world than my own thoughts.

23. My environment is exciting and keeps me involved.

24. My interests are broader than most people's.

25. My interests are narrower than most people's.

26. It is easy for me to direct my attention and focus narrowly on something.

27. It is easy for me to focus on a number of things at the same time.

28. It is easy for me to keep thoughts from interfering with something I am watching or listening to.

29. It is easy for me to keep sights and sounds from interfering with my thoughts.

30. Happenings or objects grab my attention.

31. It is easy for me to keep my mind on a single thought or idea.

32. I am good at picking a voice or instrument out of a piece of music that I am listening to.

33. With so much going on around me, it's difficult for me to think about anything for any length of time.

34. I am good at quickly analyzing complex situations around me, such as how a play is developing in football or which of four or five kids started a fight.

35. At stores I am faced with so many choices I can't make up my mind.

36. I spend a great deal of my time thinking about all kinds of ideas I have.

37. I figure out how to respond to others by imagining myself in their situation.

38. In school I would become distracted and didn't stick to the subject.

39. When I get anxious or nervous my attention becomes narrow and I fail to see important things that are going on around me.

40. Even though I am not hungry, if something I like is placed in front of me, I'll eat it.

Appendix B (continued)

41. I am more of a doing kind of person than a thinking one.

42. In a room filled with children or out on a playing field, I know what everyone is doing.

43. It is easy for me to keep my mind on a single sight or sound.

44. I am good at rapidly scanning crowds and picking out a particular person or face.

45. I have difficulty shifting back and forth from one conversation to another.

46. I get confused trying to watch activities such as a football game or circus where a number of things are happening at the same time.

47. I have so many things on my mind that I become confused and forgetful.

48. On essay tests my answers are (were) too narrow and don't cover the topic.

49. It is easy for me to forget about problems by watching a good movie or by listening to music.

50. I can't resist temptation when it is right in front of me.

51. In games I make mistakes because I am watching what one person does and forget about the others.

52. I can plan several moves ahead in complicated games like bridge and chess.

53. In school I was not a "thinker."

54. In a roomful of people I can keep track of several conversations at the same time.

55. I have difficulty telling how others feel by watching them and listening to them talk.

56. People have to repeat things to me because I become distracted by irrelevant sights or sounds around me.

57. I make mistakes because I try to do too many things at once.

58. I am good at analyzing situations and predicting in advance what others will do.

59. On essay tests my answers are (were) too broad, bringing in irrelevant information.

Appendix B (continued)

60. People fool me because I don't bother to analyze the things that they say; I take them at face value.

61. I would much rather be doing something than just sitting around thinking.

62. I make mistakes because my thoughts get stuck on one idea or feeling.

63. I am constantly analyzing people and situations.

64. I get confused at busy intersections.

65. I am good at glancing at a large area and quickly picking out several objects, such as in those hidden figure drawings in children's magazines.

66. I get anxious and block out everything on tests.

67. Even when I am involved in a game or sport, my mind is going a mile a minute.

68. I can figure out how to respond to others just by looking at them.

69. I have a tendency to get involved in a conversation and forget important things like a pot on the stove, or like leaving the motor running on the car.

70. It is easy for me to bring together ideas from a number of different areas.

71. Sometimes lights and sounds come at me so rapidly they make me light-headed or dizzy.

72. People have to repeat things because I get distracted by own irrelevant thoughts.

73. People pull the wool over my eyes because I fail to see when they are obviously kidding by looking at the way they are smiling or listening to their joking tone.

74. I can spend a lot of time just looking at things with my mind almost a complete blank except for reflecting the things that I see.

Appendix C

PERSONAL ASSESSMENT QUESTIONNAIRE-FORM S

Name: _____

Institution: _____

Years Playing Experience: _____ (high school) _____ (college) _____ (other)

Please mark X in the space that best represents your personal assessment of the statements. Example: If you have always been on winning soccer teams, mark X in the left hand space; if you have been on as many winning as losing soccer teams, mark X in the middle space.

In Soccer I have been

on winning teams	___	___	___	___	___	on losing teams
unnoticed	___	___	___	___	___	recognized
successful	___	___	___	___	___	unsuccessful
frustrated	___	___	___	___	___	rewarded
happy	___	___	___	___	___	sad
uncertain	___	___	___	___	___	confident

My Soccer athletic ability is

above average	___	___	___	___	___	below average
bad	___	___	___	___	___	good
ridiculed by coach	___	___	___	___	___	praised by coach
superior	___	___	___	___	___	inferior
limited	___	___	___	___	___	broad
praised by others	___	___	___	___	___	ridiculed by others
encouraging	___	___	___	___	___	frustrating
strong	___	___	___	___	___	weak
worse than most	___	___	___	___	___	better than most

Appendix D

INFORMED CONSENT FORM

Research is being conducted to examine the relationship between success and a number of psychological variables namely attention, concentration, perception, and anxiety. Different soccer player situations require different attentional styles as well as the ability to shift attentional styles in response to changing situations on the field. If inappropriate attentional styles are identified, then the coach will be able to alter the focus of attention to the optimal style for the specific situation.

As a subject, you will be asked to take the following paper and pencil tests in this order:

1. Group Embedded Figures Test: this test measures visual perception (20 min.).

2. Test of Soccer Attentional Style: this test is sport-specific measure of attention (20 min.).

3. Test of Attentional Style: this test determines which attentional styles describe the subject (15 min.).

4. Illinois Competition Questionnaire: this test measures how persons feel when they participate in competitive situations (5 min.).

5. Personal Assessment Questionnaire: this test determines how successful one perceives himself and the level of ability according to the subject (5 min.).

The total time involved is 65 minutes for the testing procedure. Participation in this study is voluntary and your initial agreement to participate does not stop you from discontinuing participation at any time. It is likely that results from this study will be published.

Appendix D (continued)

However, your data will never be visible by name or institution. If you have any questions pertaining to this study, please feel free to ask. If you wish to know information about the findings from this reasearch you can contact me at Ithaca College, Ithaca, New York 14850.

Please consider the purposes and time commitment of this study before you decide whether or not to participate. Please indicate your decision below. Thank you.

_____ Yes, I voluntarily choose to participate in this study. I have read the above and I understand its contents. I acknowledge that I am 18 years of age or older.

_____ No, I do not wish to participate in this study.

_____ _____

Signature Date

Fred Hooper, Graduate Student

A. Craig Fisher, Thesis Advisor

Appendix E

ITEM NUMBERS FOR TSAS SCALES

Attentional Scale	Item Number
BET	14, 15, 32, 33, 47, 51, 58, 62, 63, 69, 75, 76, 77
OET	1, 6, 7, 12, 13, 16, 19, 21, 41, 53, 55, 71, 73
BIT	3, 8, 23, 26, 27, 34, 44, 45, 48, 49, 68, 80
OIT	2, 4, 9, 11, 24, 28, 37, 46, 56, 57, 59, 61 74, 79
NET	20, 22, 42, 60, 65, 70, 72, 81
NIT	30, 35, 39, 43, 52, 54
RED	5, 10, 17, 18, 25, 29, 31, 36, 38, 40, 50, 64, 66, 67, 78

Appendix F

ITEM NUMBERS FOR TAS SCALES

Attentional Scale	Item Number
BET	34, 42, 44, 55, 65, 68
OET	1, 7, 8, 11, 29, 30, 33, 35, 46, 56, 64, 71
BIT	3, 20, 24, 27, 34, 51, 52, 70
OIT	2, 10, 19, 28, 47, 59, 69, 72, 73
NAR	4, 6, 14, 18, 25, 26, 28, 29, 31, 32, 43, 49
RED	4, 5, 6, 15, 17, 18, 27, 39, 48, 49, 51, 62, 66, 69, 74

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